

CLAIMS

1. (Previously Presented) An isolated nucleic acid molecule comprising (a) a DNA molecule encoding a UCP4 polypeptide comprising the sequence of amino acid residues from about 1 to about 323 of Figure 1 (SEQ ID NO: 1), or (b) the complement of the DNA molecule of (a).
2. (Original) The isolated nucleic acid molecule of claim 1 comprising the sequence of nucleotides from about 40 to about 1011 of Figure 2 (SEQ ID NO: 2).
3. (Original) The isolated nucleic acid molecule of claim 1 comprising the nucleotide sequence of Figure 2 (SEQ ID NO: 2).
4. (Previously Presented) An isolated nucleic acid molecule comprising DNA encoding a UCP4 polypeptide, wherein said DNA hybridizes under moderately stringent conditions to the complement of the nucleic acid comprising nucleotides from about 40 to about 1011 of Figure 2 (SEQ ID NO: 2).
5. (Previously Presented) An isolated nucleic acid molecule comprising (a) a DNA molecule encoding the same mature polypeptide encoded by the cDNA in ATCC Deposit No. 203134 (DNA 77568-1626) or (b) the complement of the DNA molecule of (a).
6. (Original) The isolated nucleic acid molecule of claim 5 comprising DNA encoding the same mature polypeptide encoded by the cDNA in ATCC Deposit No. 203134 (DNA 77568-1626).
7. (Previously Presented) An isolated nucleic acid molecule comprising (a) DNA encoding a polypeptide having at least an 80% sequence identity to the sequence of amino acid residues from about 1 to about 323 of Figure 1 (SEQ ID NO: 1), wherein said encoded polypeptide increases or decreases mitochondrial membrane potential or metabolic rate, or (b) the complement of the DNA of (a).

8. (Original) The isolated nucleic acid molecule of claim 7 comprising (a) DNA encoding a polypeptide comprising the sequence of amino acid residues from about 1 to about 323 of Figure 1 (SEQ ID NO: 1), or (b) the complement of the DNA of (a).
9. (Previously Presented) An isolated nucleic acid molecule comprising (a) DNA encoding a polypeptide scoring at least 80% positives when compared to the sequence of amino acid residues from about 1 to about 323 of Figure 1 (SEQ ID NO: 1), wherein said encoded polypeptide increases or decreases mitochondrial membrane potential or metabolic rate, or (b) the complement of the DNA of (a).
10. (Original) A vector comprising the nucleic acid of claim 1.
11. (Original) The vector of Claim 10 operably linked to control sequences recognized by a host cell transformed with the vector.
12. (Original) A host cell comprising the vector of Claim 11.
13. (Original) The host cell of Claim 12, wherein said cell is a CHO cell.
14. (Original) The host cell of Claim 12, wherein said cell is an E. coli.
15. (Original) The host cell of Claim 12, wherein said cell is a yeast cell.
16. (Withdrawn) A process for producing a UCP4 polypeptide comprising culturing the host cell of Claim 12 under conditions suitable for expression of said UCP4 polypeptide and recovering said UCP4 polypeptide from the cell culture.
- 17-43. (Cancelled)

44. (Previously Presented) The isolated nucleic acid of claim 7 wherein said encoded polypeptide has at least a 90% sequence identity to the sequence of amino acid residues from about 1 to about 323 of Figure 1 (SEQ ID NO: 1).

45. (Previously Presented) The isolated nucleic acid of claim 7 wherein said encoded polypeptide has at least a 95% sequence identity to the sequence of amino acid residues from about 1 to about 323 of Figure 1 (SEQ ID NO: 1).

46. (Cancelled)